



PENN STATE LAW REVIEW

I Want a Piece of That! How the Current Joint Inventorship Laws Deal with Minor Contributions to Inventions

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I. INTRODUCTION

After observing a new invention, have you ever muttered to yourself, “Why didn’t I think of that?” Before criticizing your own lack of individual creativity, you should keep in mind that the invention was likely conceived through the collaborative work efforts of many inventors assigned to a research and development (R&D) team. R&D teams drive large companies, a fact which indicates, in part, the tremendous value of collaboration on the path to innovation.¹ Depending upon a company’s business goals, an invention’s commercial value, and the potential for a competitive advantage, among other factors, a company may protect its R&D investments by seeking patents on the

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1. See Justin Scheck & Paul Glader, *R&D Spending Holds Steady in Slump*, WALL ST. J., Apr. 6, 2009, at A1 (reporting that “big U.S. companies spent nearly as much on research and development in the dismal last quarter of 2008 as they did a year earlier, even as their revenue fell 7.7%”).

innovations of its inventors from the U.S. Patent and Trademark Office (PTO).² Inevitably, not all individual contributions to the joint development of an invention will be equal in quality or quantity. The disparity in contributions is especially troublesome when determining who must be designated as an inventor of a particular invention, a determination with lasting implications on many parties.³

An application for a patent must be filed at the PTO in the name of the inventor or joint inventors of the invention.⁴ This requirement supports the commonsense notion that only the actual inventor(s) of an invention are entitled to a patent.⁵ In 2005, the Court of Appeals for the Federal Circuit (Federal Circuit) opined:

A person shall be entitled to a patent unless . . . he did not himself invent the subject matter sought to be patented. We have stated that “since the word ‘he’ refers to the specific inventive entity named on the patent, this subsection mandates that a patent accurately list the correct inventors of the claimed invention.”⁶

When an invention is initially conceived, patent ownership vests in the named inventor(s) who conceived and reduced the invention to practice.⁷ “The patent is then assignable by an instrument in writing, and the assignment . . . transfers to the assignee(s) an alienable ownership

2. See 35 U.S.C. § 2 (2010) (authorizing the United States Patent and Trademark Office to grant and issue patents, as well as to disseminate to the public information with respect to patents). A patent may be obtained for “any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof.” 35 U.S.C. § 101 (2010).

3. See *Mueller Brass Co. v. Reading Indus., Inc.*, 352 F. Supp. 1357, 1372 (E.D. Pa. 1972) (“The exact parameters of what constitutes joint inventorship are quite difficult to define. It is one of the muddiest concepts in the muddy metaphysics of the patent law.”).

4. 35 U.S.C. § 111 (2010). The famous provision of Article I, Section 8 of the U.S. Constitution authorizes Congress “[t]o promote the Progress of Science and useful Arts, by securing for limited Times to Authors and *Inventors* the exclusive Right to their respective Writings and Discoveries.” U.S. Const. art. I, § 8 (emphasis added). Under limited circumstances, a person other than an inventor may file an application for patent. See 35 U.S.C. § 118 (2010). The United States places a greater emphasis on individuals than most foreign jurisdictions by requiring that a patent application be filed in the name of the inventor(s). In Europe, for example, a patent application may be filed “by any natural or legal person, or any body equivalent to a legal person by virtue of the law governing it.” European Patent Convention, art. 58 (1973).

5. See 35 U.S.C. § 102(f) (2010).

6. *Checkpoint Sys., Inc. v. All-Tag Sec. S.A.*, 412 F.3d 1331, 1337-38 (Fed. Cir. 2005) (citations omitted). Inventorship errors occur in the form of misjoinder, nonjoinder, or a combination thereof. DONALD S. CHISUM, CHISUM ON PATENTS § 2.03 (2009). Misjoinder occurs when an inventor is named in error. *Id.* Nonjoinder occurs when a true inventor is not named. *Id.*

7. U.S. PATENT & TRADEMARK OFFICE, MANUAL OF PATENT EXAMINING PROCEDURE § 301 (8th ed., 7th rev. 2008) (citing *Beech Aircraft Corp. v. EDO Corp.*, 990 F.2d 1237, 1248 (Fed. Cir. 1993)).

interest in the patent. . . .”⁸ Although a company may employ a team of inventors and may own the patent after assignment, it has no legal claim to inventorship.⁹ Rather, only natural persons may be inventors.¹⁰

With the ease of modern communication, the ability to share ideas is beyond what the early patent system anticipated; the inventorship statute prior to the 1984 amendments failed to include any guidance as to who would qualify as a joint inventor when two or more persons contributed to an invention.¹¹ In 1984, Congress amended the statute in an attempt to account for joint work efforts, yet, even today, it lacks a qualitative or quantitative guideline regarding the type of inventive contribution required to qualify as a joint inventor.¹²

A highly unlikely but helpful hypothetical scenario for the purpose of this study is referred to as “The Fuzzy Steering Wheel Problem.”¹³ Imagine that you are finalizing your ideas for an incredible new car when your friend suggests that the car include a new and inventive fuzzy steering wheel. You decide that you like the idea and eventually incorporate the fuzzy steering wheel into the claims of your patent on the car. Must your friend be considered a joint inventor for such a minute contribution? This is an extreme scenario, but it illuminates a serious issue in patent law affecting many interested parties. Researchers, scientists, and engineers, for example, seek the reward and recognition of being named an inventor on a patent. At the same time, patent attorneys must communicate with inventive teams to determine the correct inventors when seeking patents. Ultimately, patent owners must ensure both the validity of its patents and its ability to sue for patent infringement.

As collaborative work efforts increase, it is difficult to distinguish a contribution worthy of legal inventorship status from an input that, while useful, does not surpass the blurry threshold of inventive contribution. This Comment utilizes the Fuzzy Steering Wheel Problem to analyze: (1) how and what one must contribute to an invention to be named a joint inventor, (2) whether the joint inventorship rules are sufficiently clear, and (3) whether the rules promote the underlying policies of the patent laws. Part II discusses the significance of inventorship in patent law

8. *Id.* (citing 35 U.S.C. § 261).

9. *See Beech Aircraft*, 990 F.2d at 1248.

10. *See id.*

11. *See* 35 U.S.C. § 116 (1982).

12. *See Fina Oil & Chem. Co. v. Ewen*, 123 F.3d 1466, 1473 (Fed. Cir. 1997) (“[35 U.S.C. § 116] sets no explicit lower limit on the quantum or quality of inventive contribution required for a person to qualify as a joint inventor.”).

13. Email from Joshua Auriemma, Admissions Editor, *Penn State Law Review*, to author, Associate Editor, *Penn State Law Review* (Aug. 28, 2009, 8:51 EST) (suggesting the “Fuzzy Steering Wheel Problem”) (on file with author).

focusing on how inventorship impacts interested parties. Part III presents the relevant statutory provisions of the Patent Act including the effects of the 1984 amendments. Part IV defines the current law on joint inventorship, specifically, the rules governing inventorship qualification enforced by the Federal Circuit. Part V analyzes the Fuzzy Steering Wheel Problem through an application of the current joint inventorship laws presented in Part IV. Part VI discusses the timeline of the development process and its effect on the joint inventorship analysis. Finally, Part VII analyzes the suitability and clarity of the current joint inventorship laws.

II. THE IMPLICATIONS OF INVENTORSHIP

A. *The Patent Grant*

A patent confers a property right to inventors, allowing them to exclude others from making, using, selling, offering for sale, or importing the patented invention in the United States.¹⁴ Congress recognized that this right should be granted only to a true inventor who was the first individual to invent the claimed subject matter.¹⁵ The property right rewards innovation, thus encouraging the research and development of new technologies.¹⁶ In exchange for an inventor or inventors gaining a monopolistic property right, the public benefits from the full disclosure of the patented invention;¹⁷ an inventor is required by law to include in an application for patent a written description of the invention, the manner and process of making and using it, and the best mode contemplated by the inventor for carrying out the invention.¹⁸ Ultimately, the public benefits from: (1) the introduction of patented products and processes into society and (2) the full disclosure of a patented invention because the knowledge will stimulate innovation leading to the development of significant improvements.¹⁹ As a matter of policy, awarding a patent to a person or persons other than the true inventor(s) undermines the quid pro quo between inventors and the public. Furthermore, it would deteriorate the public's confidence in and perception of the patent system. Beyond such policy argument, why

14. 35 U.S.C. § 154 (2010).

15. See 35 U.S.C. § 102 (2010).

16. See *A.F. Stoddard & Co. v. Dann*, 564 F.2d 556, 563-64 (D.C. Cir. 1977).

17. See *id.* at 563 (“The quid pro quo which supports the patent grant is the requirement of a full disclosure regarding the invention.”).

18. 35 U.S.C. § 112 (2010).

19. See *A.F. Stoddard*, 564 F.2d at 563-64 (quoting *Kewanee Oil Co. v. Bicron Corp.*, 416 U.S. 470, 480 (1974)).

must a clear and workable standard exist to determine who qualifies as a joint inventor? The answer, in one word, is ownership.

B. The Relationship Between Inventorship and Ownership

An inventor of at least one claim in a patent gains ownership over the entire patent.²⁰ This principle stems from the 1984 amendment to 35 U.S.C. § 116, which reduced the bar for obtaining joint inventorship status by implying that a person need only contribute to one patent claim to qualify as a joint inventor.²¹ Congress believed that the amendment “recognize[d] the realities of modern team research.”²² No change in patent ownership laws led to the interpretation that an inventor who contributed to one patent claim gains ownership in the entire patent. The inequity of permitting equal ownership interests for unequal contributions is the foundation of controversy in joint inventorship/ownership law and enhances the significance of distinguishing true inventive contributions from non-qualifying efforts.²³

While inventorship and ownership remain distinct issues of patent law, primarily because contractual arrangements and assignments dictate ownership throughout the life of a patent, the two issues are inevitably intertwined in that patent ownership always begins with inventorship.²⁴ Assuming that none of the inventors listed on a patent have assigned their ownership rights to another party, each inventor may make, use, offer to sell, or sell the patented invention within the United States without the consent of and without accounting to the other inventors.²⁵ This arrangement can put joint inventors in adverse positions relative to

20. *Lucent Techs., Inc. v. Gateway, Inc.*, 543 F.3d 710, 721 (Fed. Cir. 2008); *see also Israel Bio-Eng’g Project v. Amgen, Inc.*, 475 F.3d 1256, 1263 (Fed. Cir. 2007) (“When . . . multiple inventors are listed on the face of the patent, each co-owner ‘presumptively owns a pro rata undivided interest in the entire patent, no matter what their respective contributions.’”) (quoting *Ethicon, Inc. v. Surgical Corp.*, 135 F.3d 1456, 1465 (Fed. Cir. 1998)).

21. *See* 35 U.S.C. § 116 (2010) (“Inventors may apply for a patent jointly even though . . . each did not make a contribution to the subject matter of every claim of the patent.”).

22. 130 CONG. REC. 28,073 (1984) (statement of Rep. Kastenmeier).

23. *See Ethicon*, 135 F.3d at 1466 (“A joint inventor as to even one claim enjoys a presumption of ownership in the entire patent.”). *But see id.*, 135 F.3d at 1469-72 (Newman, J., dissenting) (arguing that the 1984 amendment to 35 U.S.C. § 116 “did not automatically convey ownership of the entire patent to everyone who could now be named as an inventor, whatever the contribution”).

24. *See Israel*, 475 F.3d at 1263 (citing *Beech Aircraft Corp. v. EDO Corp.*, 990 F.2d 1237, 1248 (Fed. Cir. 1993) (“It is elementary that inventorship and ownership are separate issues.”)); *see also supra* note 7.

25. 35 U.S.C. § 262 (2010). For a thorough discussion of the rights of co-owners, *see In re Diomed Inc.*, 394 B.R. 260, 266-67 (D. Mass. 2008).

each other and “at the mercy” of their fellow joint inventors.²⁶ For example, a joint-inventor, as a co-owner, may grant a license to a third party enabling the third party to use the patented invention without the consent of other co-owners.²⁷ The court in *Schering Corp. v. Roussel-UCLAF SA*²⁸ opined:

[U]nless the co-owner has given up [its] rights through an “agreement to the contrary,”²⁹ the co-owner may not be prohibited from exploiting its rights in the patent, including the right to grant licenses to third parties on whatever conditions the co-owner chooses.³⁰

An exercise of this right by a co-owner can cripple a patent infringement suit. In *Schering*, for example, the court held that the potential infringer did not infringe a patent because a co-owner had granted a license permitting the potential infringer to use the patented invention.³¹

Furthermore, co-owners usually must consent to join as plaintiffs in an infringement suit.³² Consequently, “one co-owner has the right to impede the other co-owner’s ability to sue infringers by refusing to voluntarily join in such a suit.”³³ For instance, in *Israel Bio-Engineering Project v. Amgen, Inc.*,³⁴ the court found that the patent owner, who filed suit alleging patent infringement, was not the sole owner of a particular

26. *Willingham v. Star Cutter Co.*, 555 F.2d 1340, 1344 (6th Cir. 1977) (“Co-owners of a patent have interests which are essentially distinct and separate. The nature of a patent is such that co-owners are at the mercy of each other.”); *see In re Diomed Inc.*, 394 B.R. at 266 (“With co-ownership comes the power to use the patent in its entirety, even if the circumstances suggest that the use results in the abuse of the rights of the remaining co-owners.”); *see also, e.g.*, *Tavory v. NTP, Inc.*, No. 2007-1527, 2008 WL 4710761 (Fed. Cir. Oct. 27, 2008) (holding that unjust enrichment claim brought by a co-owner of a patent against another co-owner when the latter transferred his own interest to a third party was preempted by § 262, which provides that a patent co-owner may transfer his own interest in a patent without the consent of, and without any accounting to, the other co-owners).

27. 35 U.S.C. § 262 (2010).

28. *Schering Corp. v. Roussel-UCLAF SA*, 104 F.3d 341 (Fed. Cir. 1997).

29. *See* 35 U.S.C. § 262 (2010).

30. *Schering Corp.*, 104 F.3d at 344.

31. *See id.* at 342.

32. *See Ethicon, Inc. v. U.S. Surgical Corp.*, 135 F.3d 1456, 1468 (Fed. Cir. 1998).

33. *Id.* (quoting *Schering Corp.*, 104 F.3d at 345). In *Ethicon*, a co-owner’s refusal to join as plaintiff in a patent infringement suit required dismissal of the suit for lack of standing. *Id.* There are two established exceptions to this general principle: (1) if a patent owner has granted an exclusive license, he stands in a relationship of trust to his licensee and must permit the licensee to sue in his name; and (2) if, by agreement, a co-owner waives his right to refuse to join suit, then his co-owners may force him to join a suit against an infringer. *Id.* *But see Dainippon Screen Mfg. Co. v. CFMT, Inc.*, 142 F.3d 1266, 1272 (Fed. Cir. 1998) (analyzing whether a claim may proceed in the absence of a patent owner under the four factor test of Rule 19 of the Federal Rules of Civil Procedure).

34. *Israel Bio-Eng’g Project v. Amgen, Inc.*, 475 F.3d 1256 (Fed. Cir. 2007).

patent.³⁵ In applying the rule that a joint owner must join all other co-owners in a patent infringement suit to establish standing, the court dismissed the suit for lack of the voluntary joinder of the other owner.³⁶ The valuable rights at stake due to the relationship between inventorship and ownership demonstrate the necessity of effective rules to determine who will acquire these rights when multiple people, rather than a single inventor, contribute to the development of an invention.

While patent ownership initially vests in the named inventors,³⁷ ownership rights are often assigned to a company.³⁸ As noted in the introduction, large companies are driven by R&D teams that continue to produce new technologies.³⁹ Most frequently, employed joint inventors assign their ownership interests to their employer corporations, often under a contractual obligation to do so.⁴⁰ Even if a company owns a patent, it does not escape the serious implications of inventorship. For example, a company may believe it exclusively owns a patent after assignment from the listed inventors, but in the event of a mistake where a true inventor went unnamed, the unnamed individual deserves ownership rights and can gain those rights upon the appropriate showing of evidence in court.⁴¹ Consequently, a company's patent infringement suit may be undermined if an unnamed inventor, as an owner, refuses to join in the suit, or the unnamed inventor licenses the potential infringer to use the patented invention.⁴²

Given the effects that misjoinder and nonjoinder of inventors have on many interested parties, inventorship has been the chief subject of much litigation.⁴³ "Ultimately, ownership stems from inventorship. If

35. *See id.* at 1268.

36. *See id.*

37. *See* U.S. PATENT & TRADEMARK OFFICE, *supra* note 7.

38. *See* CHISUM, *supra* note 6, § 22.01.

39. *See* Scheck & Glader, *supra* note 1.

40. *See* CHISUM, *supra* note 38.

Generally, an invention is the property of the inventor who conceived, developed, and perfected it. Hence, the mere fact that the inventor was employed by another at the time of the invention does not mean that that inventor is required to assign the patent rights to the employer. The right, if any, of an employer to inventions of its employee is determined primarily by the contract of employment.

Scott System, Inc. v. Scott, 996 P.2d 775, 778 (Colo. App. 2000).

41. *Univ. of Pitt. v. Hedrick*, 573 F.3d 1290, 1297 (Fed. Cir. 2009) ("The inventors named in an issued patent are presumed correct, and a party alleging misjoinder [or nonjoinder] of inventors must prove its case by clear and convincing evidence.").

42. *See* *Lucent Techs, Inc. v. Gateway, Inc.*, 543 F.3d 710, 720 (Fed. Cir. 2008); *see also* *Schering Corp. v. Roussel-UCLAF SA*, 104 F.3d 341, 342 (Fed. Cir. 1997).

43. *See generally, e.g., Univ. of Pitt.*, 573 F.3d at 1290 (deciding whether independent researchers were inappropriately named as joint inventors alongside researchers for the University of Pittsburgh); *Nartron Corp. v. Schukra U.S.A. Inc.*, 558 F.3d 1352 (Fed. Cir. 2009) (determining the inventorship status of an alleged inventor

inventorship is wrong, the entire chain of title, as well as the agreements based upon it, [is] tainted.”⁴⁴

C. *The Risk of Invalidity*

Perhaps a more serious consequence of an inventorship mistake is the risk of the patent being declared invalid. Prior to the enactment of the Patent Act of 1952, a mistake of inventorship invalidated the patent.⁴⁵ Once enacted, however, 35 U.S.C. § 256 allows a mistake of inventorship to be corrected without affecting the enforceability of the issued patent so long as the error arose without any deceptive intention.⁴⁶ Based on the plain meaning of the statute, an issued patent will rarely be invalidated for inventorship errors unless a party can prove that the patentee had intent to deceive, which is otherwise known as carrying out inequitable conduct.⁴⁷ Despite the fact that inventorship mistakes are correctable,⁴⁸ it still takes valuable time and money to correct them.⁴⁹

who was not joined in an infringement suit); *Ethicon, Inc. v. U.S. Surgical Corp.*, 135 F.3d 1456 (Fed. Cir. 1998) (deciding whether a defendant-intervenor, claiming to have granted defendant a retroactive license, was a true joint inventor, thus having the power to grant the license).

44. DONALD A. DEGNAN & LIBBY A. HUSKEY, *INVENTORSHIP: WHAT HAPPENS WHEN YOU DON'T GET IT RIGHT?* (Am. Intellectual Prop. Law Ass'n. 2006).

45. *See Pannu v. Iolab Corp.*, 155 F.3d 1344, 1349 (Fed. Cir. 1998) (“Well-established case law predating the enactment of the Patent Act of 1952 . . . mandated that nonjoinder of an actual inventor would render a patent invalid.”).

46. 35 U.S.C. § 256 (2010). *See, e.g., Checkpoint Sys., Inc. v. All-Tag Sec. S.A.*, 412 F.3d 1331, 1338 (Fed. Cir. 2005) (“‘If nonjoinder of an actual inventor is proved by clear and convincing evidence, a patent is rendered invalid.’ However, ‘[i]f a patentee can demonstrate that inventorship can be corrected as provided by [statute], a district court must order correction of the patent, thus saving it from being rendered invalid.’”) (quoting *Pannu v. Iolab Corp.*, 155 F.3d 1344, 1350 (Fed. Cir. 1998)).

47. *See Advanced Magnetic Closures, Inc. v. Rome Fastener Corp.*, 607 F.3d 817, 829 (Fed. Cir. 2010) (“A party asserting inequitable conduct must prove by clear and convincing evidence that a patent applicant breached [its duty of candor, good faith, and honesty] by (1) ‘fail[ing] to disclose material information or submit[ting] materially false information to the PTO’ with (2) ‘intent to mislead or deceive the examiner.’”) (quoting *McKesson Info. Solutions, Inc. v. Bridge Med., Inc.*, 487 F.3d 897, 913 (Fed. Cir. 2007)). In *Rome Fastener*, a patent infringement suit was dismissed because the patent was declared unenforceable based on inequitable conduct. *See id.* at 829-32. The court determined that the only listed inventor “concealed the most critical information: he was not the inventor he claimed to be.” *Id.* at 830.

48. Inventorship errors in patent applications may be corrected under 35 U.S.C. § 116, whereas inventorship errors in issued patents may be corrected under 35 U.S.C. § 256.

49. The PTO requires any request to correct inventorship of an issued patent to be accompanied by: (1) a statement from each person who is being added as an inventor that the error occurred without any deceptive intent; (2) a statement from the current named inventors either agreeing to the change or stating that they have no disagreement; (3) a statement from all assignees agreeing with the change; and (4) a processing fee. 37 C.F.R. § 1.324 (2009).

III. THE PATENT ACT AND THE 1984 AMENDMENTS

After examining the significance of inventorship, it is beneficial to understand the development of the law of joint invention in the Patent Act. The property right in a patented invention is defined by the breadth of the patent claims; thus, only the claims are important when determining inventorship.⁵⁰ Prior to the 1984 amendments, Congress provided minimal guidance as to who constituted a joint inventor and instead only described the procedures for jointly applying for a patent and for correcting inadvertent inventorship mistakes in patent applications.⁵¹ During that time, courts developed an “all claims” rule for addressing the joint inventorship issue.⁵² “The ‘all claims’ rule required, in a joint patent, each inventor to contribute to the subject matter of each claim.”⁵³ For example, if two inventors jointly developed a single, patentable invention, but the inventors individually contributed to separate claims of the patent, the “all claims” rule required each collaborative inventor to file a separate patent application containing only the claims contributed to by the corresponding inventor.⁵⁴ In 1998, Judge Pauline Newman discussed why the “all claims” rule was problematic:

If different persons made an inventive contribution to various parts of an invention or to different claims of a patent, the legalistic problems

50. See DONALD S. CHISUM, CHISUM ON PATENTS § 2.02 (2009) (“[A]n inventorship analysis, like an infringement or invalidity analysis, begins as a first step with a construction of each asserted claim to determine the subject matter encompassed thereby. The second step is then to compare the alleged contributions of each asserted co-inventor with the subject matter of the properly construed claim to then determine whether the correct inventors were named.”) (quoting *Trovan v. Sokymat SA, Irori*, 299 F.3d 1292, 1302 (Fed. Cir. 2002)).

51. Prior to the 1984 amendments, 35 U.S.C. § 116 read as follows:

When an invention is made by two or more persons jointly, they shall apply for patent jointly and each sign the application and make the required oath, except as otherwise provided in this title. . . . If a joint inventor refuses to join in an application for patent or cannot be found or reached after diligent effort, the application may be made by the other inventor on behalf of himself and the omitted inventor Whenever through error a person is named in an application for patent as the inventor, or through error an inventor is not named in an application, and such error arose without any deceptive intention on his part, the Commissioner may permit the application to be amended accordingly, under such terms as he prescribes.

35 U.S.C. § 116 (1982).

52. See *AMP, Inc. v. Fujitsu Microelec., Inc.*, 853 F.Supp. 808, 817 (M.D. Pa. 1994).

53. *Id.*

54. See *Worden v. Fisher*, 11 F. 505, 508-09 (C.C.E.D. Mich. 1882) (“If one person invents a distinct part of a machine, and another person invents another distinct and independent part of the same machine, then each should obtain a patent for his own invention.”).

that arose were not readily soluble, even by the complex, expensive, and often confusing expedient of filing separate patent applications on separate claims. . . . As team research increased with the growth of technology-based industry, so did the dilemma, for the rules of joint inventorship were not readily adaptable to the development of complex inventions. It became apparent that legislative remedy was needed.⁵⁵

In 1984, Congress tried to account for the technical problems stemming from the increase in collaborative work efforts by enacting an amendment to 35 U.S.C. § 116. The amendment states:

When an invention is made by two or more persons jointly, they shall apply for patent jointly and each make the required oath, except as otherwise provided in this title. Inventors may apply for a patent jointly even though (1) they did not physically work together or at the same time, (2) each did not make the same type or amount of contribution, or (3) each did not make a contribution to the subject matter of every claim of the patent.⁵⁶

On its face, the amendment rejected the “all claims” rule.⁵⁷ In interpreting the statute, courts have stated that an inventor’s contribution to one claim is enough to qualify as a joint inventor.⁵⁸ The amended statute, while providing more guidance, only addresses what is not required for joint-invention. Joint-inventors do not have to: (1) physically work together or at the same time; (2) make equal contributions in type or amount; or (3) contribute to every claim.⁵⁹ The statute, however, does not define what kind of qualitative or quantitative contribution is legally sufficient to qualify as a joint inventor. In addition, the statute does not discuss whether the point in the development process at which a potential inventor gives his or her input is important to the inventorship analysis.

55. *Ethicon, Inc. v. U.S. Surgical Corp.*, 135 F.3d 1456, 1469-70 (Fed. Cir. 1998) (Newman, J., dissenting) (also recognizing that patents were invalidated simply because all the named inventors did not contribute to all the claims) (citing *Jamesbury Corp. v. U.S.*, 518 F.2d 1384, 1395 (Ct. Cl. 1975)).

56. 35 U.S.C. § 116, para. 1 (1984).

57. See *Fujitsu Microelec., Inc.*, 853 F. Supp. at 817.

58. See *Ethicon*, 135 F.3d at 1460 (“A co-inventor need not make a contribution to every claim of a patent. A contribution to one claim is enough.”) (citing *SmithKline Diagnostics, Inc. v. Helena Lab. Corp.*, 859 F.2d 878, 888 (Fed. Cir. 1988)).

59. 35 U.S.C. § 116 (2010).

IV. DEFINING JOINT INVENTORSHIP

A. *Conception*

Without affirmative congressional guidelines, courts, namely the Federal Circuit, have assumed the responsibility of defining the appropriate standards for joint inventorship. A long line of decisions from the Federal Circuit has held that a person must contribute to the conception of the claimed invention to qualify as a joint inventor.⁶⁰ In *Burroughs Wellcome Co. v. Barr Laboratories, Inc.*,⁶¹ the Federal Circuit explained that “[c]onception is the touchstone of inventorship, the completion of the mental part of the invention.”⁶²

In essence, joint inventorship determinations require a layered analysis of crucial terms. To begin, conception has been defined as the “formation in the mind of the inventor, of a definite and permanent idea of the complete and operative invention, as it is hereafter to be applied in practice.”⁶³ An important observation that does not follow intuitively from the previous definition is that an individual joint inventor need not have a “definite and permanent idea of the complete and operative invention” so long as all of the joint inventors collectively satisfy that requirement.⁶⁴ As a whole, “the conceived invention must include every feature of the subject matter claimed in the patent.”⁶⁵

If a joint inventor must contribute to a “definite and permanent idea” in order to have contributed to the “conception” of the invention, it is imperative to determine, first, the definition of definite and permanent

60. *Vanderbilt Univ. v. ICOS Corp.*, 601 F.3d 1297, 1303 (Fed. Cir. 2010) (citing *Eli Lilly & Co. v. Aradigm Corp.*, 376 F.3d 1352, 1359 (Fed. Cir. 2004)). A joint inventor’s own statements are inadequate to prove conception as a matter of law. *See Tavory v. NTP, Inc.*, No. 2007-1527, 2008 WL 4710761 (Fed. Cir. Oct. 27, 2008) (explaining that a co-inventor’s own statements must be corroborated by independent evidence, which can be in the form of contemporaneous documents or the oral testimony of an independent witness).

61. *Burroughs Wellcome Co. v. Barr Labs., Inc.*, 40 F.3d 1223 (Fed. Cir. 1994).

62. *Id.* at 1227-28.

63. *Hybritech, Inc. v. Monoclonal Antibodies, Inc.*, 802 F.2d 1367, 1376 (Fed. Cir. 1986) (quoting 1 ROBINSON ON PATENTS 532 (1890)).

64. *See Vanderbilt Univ.*, 601 F.3d at 1303 (“[E]ach contributor need not have their own contemporaneous picture of the final claimed invention in order to qualify as joint inventors.”) (citing *Fina Oil & Chem. Co. v. Ewen*, 123 F.3d 1466, 1473 (Fed. Cir. 1997) (“One need not alone conceive of the entire invention, for this would obviate the concept of joint invention.”)).

65. *Ethicon, Inc. v. U.S. Surgical Corp.*, 135 F.3d 1456, 1460 (Fed. Cir. 1998) (citing *Sewall v. Walters*, 21 F.3d 411, 415 (Fed. Cir. 1994)). In a joint invention, each inventor must contribute to the joint arrival at a definite and permanent idea of the invention as it will be used in practice. *See Univ. of Pitt. v. Hedrick*, 573 F.3d 1290, 1298 (Fed. Cir. 2009) (citing *Price v. Symsek*, 988 F.2d 1187, 1196 (Fed. Cir. 1993)).

and, second, when the formation of such idea is complete, because one will not qualify as a joint inventor by “merely assisting the actual inventor after conception of the claimed invention.”⁶⁶ “An idea is definite and permanent when the inventor has a specific, settled idea, a particular solution to the problem at hand.”⁶⁷ An inventor, however, need not know that the invention will work in practice for conception to be complete.⁶⁸ “Proof that the invention works to a scientific certainty is [the separate step of] reduction to practice.”⁶⁹ Rather, conception is complete when “only ordinary skill would be necessary to reduce the invention to practice, without extensive research or experimentation.”⁷⁰ Consequently, the sophistication of the science underlying the invention, which influences factors such as the level of ordinary skill and required experimentation, may substantially impact whether conception is complete.⁷¹ At the point where only ordinary skill is necessary to reduce the invention to practice, in essence the completion of conception, an

66. *Ethicon*, 135 F.3d at 1460.

67. *Burroughs*, 40 F.3d at 1228.

68. *Hedrick*, 573 F.3d at 1298 (citing *Price*, 988 F.2d at 1196).

69. *Id.* at 1299. An insightful passage from *Hedrick* concerning joint inventorship of an adipose tissue-derived stem cell, illuminates the priority of conception over reduction to practice in resolving inventorship disputes:

[B]ecause the district court found evidence that Katz and Lull had formed a definite and permanent idea of the cells’ inventive qualities, and had in fact observed them, it is immaterial that their knowledge was not scientifically certain and that the REBAR researchers helped them gain such scientific certainty. “The determinative inquiry is not whether [the inventor’s] disclosure was phrased certainly or tentatively, but whether the idea expressed therein was sufficiently developed to support conception of the subject matter.”

Id. (quoting *In re Jolley*, 308 F.3d 1317, 1324 (Fed. Cir. 2002)).

70. *Burroughs*, 40 F.3d at 1228. It is said that an invention consists of two parts: conception and reduction to practice. *Judkins v. HT Windows Fashions Corp.*, 624 F. Supp. 2d 427, 435 (citing *Purdue Pharma L.P. v. Boehringer Ingelheim GMBH*, 237 F.3d 1359, 1365 (Fed. Cir. 2001)). Conception is the mental formation of a definite and permanent idea. *See id.* Reduction to practice is generally regarded as taking an intangible idea and reducing it to a physical, working embodiment, known as actual reduction to practice. *See Medichem, S.A. v. Rolabo, S.L.*, 437 F.3d 1157, 1169 (Fed. Cir. 2006). Reduction to practice also occurs upon the filing of a patent application, which discloses the invention in such detail as to be considered “constructively” reduced to practice. *See Frazer v. Schlegel*, 498 F.3d 1283, 1288 (Fed. Cir. 2007) (citing *Hyatt v. Boone*, 146 F.3d 1348, 1352 (Fed. Cir. 1998)).

71. *See Fina Oil & Chem. Co. v. Ewen*, 123 F.3d 1466, 1473-74 (Fed. Cir. 1997) (discussing the doctrine of simultaneous conception and reduction to practice, which states that in some instances, an inventor may only be able to establish a conception by a reduction to practice through a successful experiment). The doctrine applies primarily to experimental sciences involving complex chemical compounds under the rationale that an inventor cannot conceive, which involves possessing an operative method of producing the compound, until the idea has been reduced to practice through a successful experiment. *See Brown v. Regents of Univ. of Cal.*, 866 F. Supp. 439, 442-43 (N.D. Cal. 1994).

inventor's idea is clearly and particularly defined and is not just a "general goal or research plan."⁷²

B. Inventiveness

As previously discussed, a joint inventor need not contribute to the conception of every claim, nor make the same "type or amount" of contribution as other inventors.⁷³ Nevertheless, certain efforts, even if contributing to a definite and permanent idea, will be insufficient. A widely cited case states that an individual must have played an "inventive" role in making an "original contribution" to a "final solution" in order to qualify as a joint inventor.⁷⁴ Therefore, exercising "normal skill expected of one skilled in the art, without an inventive act" will not qualify one as a joint inventor.⁷⁵ Accordingly, a person who merely provides the inventor with well-known principles or explains the current state of the art will not be considered a joint inventor.⁷⁶ Similarly, simply exercising ordinary skill to reduce the invention to practice is insufficient for joint inventorship.⁷⁷ *Hess v. Advanced Cardiovascular Systems, Inc.*⁷⁸ provides an insightful example of a person who exercised only ordinary skill in the art when contributing to an invention and therefore did not qualify as a joint inventor. In *Hess*, two doctors invented a balloon angioplasty catheter, but the doctors could not find an appropriate material for the balloon.⁷⁹ The doctors sought advice from Mr. Hess, an engineer, who recommended the doctors use a specific material for the balloon in their invention, for which they subsequently obtained a patent.⁸⁰ Mr. Hess challenged that he should be considered a joint inventor for his contribution.⁸¹ In denying Mr. Hess's claim of

72. *Burroughs*, 40 F.3d at 1228.

73. 35 U.S.C. § 116 (2010).

74. *Brown*, 866 F. Supp. at 442 (citing *Monsanto Co. v. Kamp*, 269 F. Supp. 818, 824 (D.D.C. 1967)).

75. *Nartron Corp. v. Schukra U.S.A., Inc.*, 558 F.3d 1352, 1357 (Fed. Cir. 2009) (quoting *Ewen*, 123 F.3d at 1473).

76. *See id.* at 1356; *Caterpillar, Inc. v. Sturman Indus., Inc.*, 387 F.3d 1358, 1377 (Fed. Cir. 2004); *Ethicon, Inc. v. U.S. Surgical Corp.*, 135 F.3d 1456, 1460 (Fed. Cir. 1998).

77. *Ethicon*, 135 F.3d at 1460 (citing *Sewall v. Walters*, 21 F.3d 411, 416 (Fed. Cir. 1994)). *But see Pannu v. Iolab Corp.*, 155 F.3d 1344, 1351 (Fed. Cir. 1998) ("All that is required of a joint inventor is that he or she [] contributes in some significant manner to the conception or reduction to practice of the invention. . ."). In *Pannu*, it is unclear why the Federal Circuit suggests that a significant contribution to the reduction to practice of the invention will qualify one as a joint inventor. Past precedent typically construes reduction to practice as a separate step following conception.

78. *Hess v. Advanced Cardiovascular Sys., Inc.*, 106 F.3d 976 (Fed. Cir. 1997).

79. *See id.* at 977.

80. *See id.*

81. *See id.* at 978.

inventorship, the court explained that Mr. Hess did no more than contribute well-known principles that a person of ordinary skill in the art could add.⁸² Specifically, the court noted that the principles Mr. Hess explained to the doctors “were well known and found in textbooks” and that Mr. Hess “did no more than a skilled salesman would do in explaining how his employer’s product could be used to meet a customer’s requirements.”⁸³ The court’s reasoning plainly emphasized the lack of inventiveness of Mr. Hess’s contribution.

C. *The “Not Insignificant in Quality” Requirement*

In addition to being inventive, a contribution to conception worthy of inventorship must be “not insignificant in quality” when compared to the dimension of the full invention.⁸⁴ This principle dictated the outcome in *Nartron Corp. v. Schukra U.S.A., Inc.*,⁸⁵ a recent decision by the Federal Circuit. In that case, Nartron Corp. sued Borg Indak, Inc. for contributory infringement of its patent relating to a vehicle seat control system that provides massage capability.⁸⁶ The United States District Court for the Eastern District of Michigan dismissed the suit because of Nartron’s failure to join an alleged joint inventor, Benson, as a plaintiff.⁸⁷ Nartron appealed the district court’s decision, arguing that Benson was not a true inventor.⁸⁸ Benson’s alleged inventive contribution was an extender for a lumbar support adjuster that extended outwardly from the seat back toward a spinal curvature of an occupant.⁸⁹ In rejecting Benson as a joint inventor, the Federal Circuit declared that his contribution was nothing but an exercise of ordinary skill in the art and noted that such extenders were already part of existing automobile seats.⁹⁰ Furthermore, the court emphasized that Benson’s contribution was “insignificant when measured against the full dimension of the invention.”⁹¹ The court reasoned that the crux of the invention was not on the structure of the seat itself, but instead on the structure and function of the control module, which operates the seat.⁹² Additionally, the court noted that the patent specification mentioned the extender “only once in a twenty-

82. *See id.* at 981.

83. *Id.*

84. *Caterpillar, Inc. v. Sturman Indus., Inc.*, 387 F.3d 1358, 1377 (Fed. Cir. 2004) (citing *Fina Oil & Chem. Co. v. Ewen*, 123 F.3d 1466, 1473 (Fed. Cir. 1997)).

85. *Nartron Corp. v. Schukra U.S.A. Inc.*, 558 F.3d 1352 (Fed. Cir. 2009).

86. *See id.* at 1354.

87. *See id.* at 1353.

88. *See id.*

89. *Id.* at 1354.

90. *Id.* at 1357.

91. *Id.* at 1357-58.

92. *Id.* at 1358.

column patent.”⁹³ Accordingly, the court held that Benson did not qualify as a joint inventor as a matter of law.⁹⁴

D. Collaboration

In addition to proving joint conception among alleged inventors, courts have required one further element: collaboration.⁹⁵ Although 35 U.S.C. § 116 does not require joint inventors to physically work together or at the same time, courts interpret the word “jointly” in the statute to require “at least some quantum of collaboration or connection.”⁹⁶ Seemingly any level of awareness on the part of each inventor that both are working toward a common goal will suffice. The court in *Kimberly-Clark Corp. v. Procter & Gamble Distributing Co., Inc.*⁹⁷ explained, “Individuals cannot be joint inventors if they are completely ignorant of what each other has done until years after their individual independent efforts. They cannot be totally independent of each other and be joint inventors.”⁹⁸

V. REVISITING THE “FUZZY STEERING WHEEL PROBLEM”

While the Fuzzy Steering Wheel Problem has practical limitations, the scenario where one inventor makes a minor contribution that is included in at least one patent claim allows for an interesting discussion of joint inventorship. Under the current laws defining joint inventorship, how would the Fuzzy Steering Wheel Problem be analyzed? Initially, one must define the invention—specifically, the parts of the invention that are claimed.⁹⁹ Determining how the claimed subject matter is distinguished from the prior ultimately governs whether a contribution is inventive and significant, as discussed in more detail below. Let us assume that your friend’s idea of a fuzzy steering wheel is incorporated into at least one claim; otherwise, no dispute would exist because your friend would have failed to contribute to any claimed subject matter.

Did your friend contribute to the conception of a definite and permanent idea? Seemingly, yes. You initially had an idea consisting of many new and improved features for an automobile. Your friend then contributed a specific, settled idea that may provide a particular solution to the problem of cold steering wheels during winter season. Implicit in

93. *Id.*

94. *See id.* at 1353.

95. *See Eli Lilly & Co. v. Aradigm Corp.*, 376 F.3d 1352, 1359 (Fed. Cir. 2004).

96. *Id.*

97. *Kimberly-Clark Corp. v. Procter & Gamble Distrib. Co., Inc.*, 973 F.2d 911 (Fed. Cir. 1992).

98. *Id.* at 917.

99. *See* CHISUM, *supra* note 50.

this analysis is the question of whether your conception of the automobile was complete before your friend suggested the fuzzy steering wheel. Although you may have formed a definite and permanent idea of practically every detail of your automobile sufficiently clear to allow one of ordinary skill to construct such vehicle, your conception did not include “every feature of the subject matter claimed in the patent.”¹⁰⁰ In other words, your initial conception did not include the claimed fuzzy steering wheel. Therefore, your friend contributed to the conception of the invention.

A contribution worthy of inventorship status must also be inventive; a person may not just explain well-known principles or contribute an idea that would have been obvious to those of ordinary skill in the art at that time.¹⁰¹ Courts have construed a non-inventive idea as being insignificant in quality when compared to the full dimension of the invention.¹⁰² This principle is reasonable because a non-inventive or obvious idea fails to enhance the patentability of an invention and hence should be designated as an insignificant contribution. For purposes of this study, it is assumed that your friend’s fuzzy steering wheel was new and inventive.¹⁰³ Therefore, the contribution meets the inventiveness requirement and should not be considered insignificant at this point in the analysis.

Recall that *Nartron* raises a secondary consideration regarding the “not insignificant in quality” test. *Nartron* suggests that the purpose of the invention is also important when deciding whether a contribution is insignificant in quality when compared to the full dimension of the invention.¹⁰⁴ Specifically, the court supported its conclusion that a contribution regarding an extender for an automobile seat was insignificant by noting that the crux of the invention was not the structure of the seat itself, but instead was the structure and function of the control module which operated the seat.¹⁰⁵ Because the inventorship analysis is performed on a claim-by-claim basis, it was noteworthy that the single claim in which the extender was included, claim 11, was a dependent claim that incorporated all of the features of claims 1, 5, and 6 of the patent.¹⁰⁶ Therefore, when examining whether the extender was

100. *Ethicon, Inc. v. U.S. Surgical Corp.*, 135 F.3d 1456, 1460 (Fed. Cir. 1998) (citing *Sewall v. Walters*, 21 F.3d 411, 415 (Fed. Cir. 1994)).

101. *Nartron Corp. v. Schukra U.S.A., Inc.*, 558 F.3d 1352, 1357 (Fed. Cir. 2009) (quoting *Fina Oil & Chem. Co. v. Ewen*, 123 F.3d 1466, 1473 (Fed. Cir. 1997)).

102. *See Caterpillar, Inc. v. Sturman Indus., Inc.*, 387 F.3d 1358, 1377 (Fed. Cir. 2004) (citing *Fina Oil & Chem. Co.*, 123 F.3d at 1473).

103. Let us ignore the fact that fuzzy steering wheels already exist.

104. *See Nartron Corp.*, 558 F.3d at 1357-58.

105. *Id.*

106. *See id.* at 1358.

insignificant in quality when compared to the full dimension of the invention, the court compared the extender to all of the other features incorporated in claim 11 and reasoned that the extender was insignificant.¹⁰⁷ Had the extender been an inventive contribution featured in an independent claim with few other elements, the court would have likely concluded that the contribution was significant. In other words, the extender would have significantly contributed to that claim, which is all that is required, assuming sufficient inventiveness, to be listed as an inventor on a patent.

Applying this analysis to the fuzzy steering wheel problem, the crucial factor is how the fuzzy steering wheel is included in the patent claims. If included in a claim that also lists many of the other unquestionably more important elements of the invention, an argument could be made that the fuzzy steering wheel, much like the extender, is insignificant in quality when compared to the full dimension of the claim. If, however, the fuzzy steering wheel is featured in a claim with few other elements, it may be difficult to argue that such contribution was insignificant, especially in this scenario where it is assumed that the fuzzy steering wheel is inventive.

Moreover, if you decide that your friend's suggestion of a fuzzy steering wheel is significant enough to include in your patent, it should be difficult for you to argue, after the fact, that the contribution was insignificant. This proposition leads to a policy determination by analyzing the two possible inequities that could result from the Fuzzy Steering Wheel Problem. One inequity occurs if you include your friend's suggestion of a fuzzy steering wheel in your patent, but your friend is not considered a joint inventor. Here, you have taken and will benefit from your friend's specific idea, but your friend will receive no credit—and worse, no interest—in the patent. The other possible inequity occurs if your friend is considered a joint inventor. Your friend would gain an equal ownership interest in the entire patent for a grossly unequal contribution. An essential factor is that you had the power to control whether to include your friend's contribution in your patent. As a matter of policy, because you chose to include the contribution, you should endure the inequity.

Ultimately, the Fuzzy Steering Wheel Problem has no definitive solution given the decidedly limited number of facts provided in the scenario, but from the analysis, your friend's contribution could be worthy of inventorship status. The contribution was included in at least one patent claim. The contribution was to the conception of the invention. It was inventive as stipulated and, depending upon the way it

107. *See id.*

was claimed, was “not insignificant in quality” when compared to the full dimension of the invention. Even if the fuzzy steering wheel was buried in a claim with many other features appearing to be more significant, you would still run the risk of a court concluding that the contribution is worthy of inventorship status. In sum, the realistic possibility that your friend could obtain inventorship status for such a minor contribution is an eye-opening conclusion. This result demonstrates the significance of understanding who contributed to each and every element of the patent claims. Imagine a much more complex scenario where an abundance of potential inventors among many entities have contributed ideas, such as the joint work efforts of universities. If one university believed that its scientists were the sole contributors to the conception of an invention, it would be doing itself a large disservice by not inquiring as to the source of all elements included in the patent claims, no matter how minor a particular element may seem.

Lastly, the analysis of the Fuzzy Steering Wheel Problem reveals that a proper investigation of the potential inventors of all the subject matter planned to be included in the patent claims should influence whether to include certain individual contributions in the claims. For example, in the Fuzzy Steering Wheel Problem, you would be better off not including your friend’s suggestion in your patent claims. The potential adverse effects on your interests due to being “at the mercy”¹⁰⁸ of your friend, now co-owner, strongly outweigh the benefit of including your friend’s fuzzy steering wheel contribution. While this may seem like common sense, a party seeking a patent could never arrive at such a cost-benefit analysis without first identifying all potential inventors of the claimed invention. Therefore, above all, the Fuzzy Steering Wheel Problem exposes the consequences of making incorrect assumptions as to the sources of particular contributions to an invention, no matter how small, and calls attention to the strategies involved in looking out for one’s best interests when seeking a patent.

VI. THE DEVELOPMENT PROCESS AND ITS EFFECT ON INVENTORSHIP

Given that conception is the touchstone of inventorship,¹⁰⁹ the point at which a person contributes an idea—for example, either during conception, design, or testing of the invention—can have a significant impact on the person’s status as an inventor. “An inventor ‘may use the services, ideas, and aid of others in the process of perfecting his

108. *Willingham v. Star Cutter Co.*, 555 F.2d 1340, 1344 (6th Cir. 1977).

109. *Burroughs Wellcome Co. v. Barr Labs., Inc.*, 40 F.3d 1223, 1227-28 (Fed. Cir. 1994).

invention without losing his right to a patent.”¹¹⁰ Therefore, suggestions from others to help perfect an invention made during the design or testing phase in the development of an invention usually will not rise to the level of inventorship status.¹¹¹ However, one is not barred from becoming an inventor if one contributes an idea during the design or testing of the invention. If a person contributes a specific, inventive idea toward an invention during the design or testing phase and such idea is included in at least one patent claim, then the contribution will likely add to the conception of the invention, and the law should provide inventorship status for that contribution.¹¹² Furthermore, conception may not be complete if testing or experimentation reveals an “uncertainty that so undermines the specificity of the inventor’s idea that it is not yet a definite and permanent reflection of the complete invention as it will be used in practice.”¹¹³ As a result, a significant contribution during experimentation of an uncertain idea may be a contribution to conception worthy of inventorship status.

VII. THE SUITABILITY AND CLARITY OF THE JOINT INVENTORSHIP STANDARDS

Ideally, joint inventorship laws should encourage collaboration, be easy to administer, be predictable in application, and promote equity. Unfortunately, achieving all four goals simultaneously is a difficult task. For example, prior to the 1984 amendments, the “all claims” rule was both easy to administer and predictable in that if a person did not contribute to every claim, that individual was not an inventor; yet, the rule appeared to discourage collaboration because of the fear that significant contributions could go unrewarded simply because an inventor did not contribute to *every* patent claim.¹¹⁴ In the alternative,

110. *Shatterproof Glass Corp. v. Libbey-Owens Ford Co.*, 758 F.2d 613, 624 (Fed. Cir. 1985) (quoting *Hobbs v. U.S. Atomic Energy Comm.*, 451 F.2d 849, 864 (5th Cir. 1971)).

111. Often these suggestions will be nothing more than information that could be obtained from those of ordinary skill in the art, which is not worthy of inventorship status. See, e.g., *Hess v. Advanced Cardiovascular Sys., Inc.*, 106 F.3d 976, 981 (Fed. Cir. 1997).

112. The idea behind this theory is that conception is not complete unless “only ordinary skill would be necessary to reduce the invention to practice, without extensive research or experimentation.” *Burroughs Wellcome Co.*, 40 F.3d at 1228. Therefore, if significant inputs are given that rise above the level of ordinary skill and are subsequently included in the patent claims, then conception was not yet complete at that time, and the contributions will give rise to inventorship status.

113. *Id.* at 1229 (citing *Amgen, Inc. v. Chugai Pharm. Co.*, 927 F.2d 1200, 1207 (Fed. Cir. 1991)).

114. See W. Fritz Fasse, *The Muddy Metaphysics of Joint Inventorship: Cleaning Up After the 1984 Amendments to 35 U.S.C. § 116*, 5 HARV. J.L. & TECH. 153, 177-79 (1992)

consider the effects of joint inventorship laws that foster an extremely low bar to achieving inventorship status. This too may discourage joint efforts because of the fear that any exchange of ideas will open the floodgates on the path to achieving inventorship status. Accordingly, scientists, engineers, and researchers might hesitate before seeking the assistance of others thus decreasing productivity and hindering innovation.

A. *Has the Inventorship Bar Dropped Too Low?*

Taking into consideration the conclusions drawn from the Fuzzy Steering Wheel Problem, have the current joint inventorship rules dropped the bar too low? At first blush, one may be inclined to say yes. After all, the Fuzzy Steering Wheel Problem suggests that even the smallest of contributions have the potential of gaining its contributor inventorship status. Not only does this appear to discourage collaboration, but it also seems to promote inequity. Upon further examination, however, one should not overlook both the court-mandated hurdles to becoming an inventor and the ability of the party seeking a patent to exercise control over the contributions included in the patent claims. Particularly, a contribution worthy of inventorship status must amount to more than an exercise of ordinary skill in the art, and must be “not insignificant in quality” when compared to the full dimension of the invention.¹¹⁵ Furthermore, as previously noted, “[a]n inventor ‘may use the services, ideas, and aid of others in the process of perfecting his invention without losing his right to a patent.’”¹¹⁶ These rules should adequately eliminate many potential inventors from consideration, thus easing the anxieties of scientists, researchers, and engineers regarding the exchange of ideas. The current laws avoid the harshness of the “all claims” rule, while still implementing fundamental obstacles to keep inputs that are based upon common knowledge in the art and/or that are insignificant from qualifying. A scientist who has a few general ideas for a novel invention should feel comfortable collaborating with others because any inputs he or she receives that do not meet the requirements just noted, even if useful, will not gain its contributors inventorship status. The scientist would most likely embrace contributions that do meet the requirements because such inputs will enhance the value and

(discussing the “all claims rule” as a hindrance to team research efforts as well as discussing the Congressional intent behind the 1984 amendment to 35 U.S.C. § 116).

115. See discussion, *supra* Part IV.B, IV.C.

116. *Shatterproof Glass Corp. v. Libbey-Owens Ford Co.*, 758 F.2d 613, 624 (Fed. Cir. 1985) (quoting *Hobbs v. U.S. Atomic Energy Comm.*, 451 F.2d 849, 864 (5th Cir. 1971)).

patentability of the invention. If the scientist receives an inventive contribution of questionable significance, much like the fuzzy steering wheel, the scientist may decide not to implement the suggestion into the patent after weighing the benefit of the input against the cost of potentially sharing ownership of the patent. While this is broken down into a simple abstract example, the concept should hold true even in complex situations as long as potential inventors are vigilant and meticulous in noting who is contributing to an invention and communicate with patent attorneys who can provide insight as to whether particular inputs meet the appropriate requirements. In light of the above analysis, the current joint inventorship standards do promote collaboration, and despite the fact that a person may qualify as an inventor for contributing to only one patent claim, the party seeking the patent may manage this inequity by deciding whether to include that contribution.

B. Practice Makes Perfect

Ease of administration and predictability steer toward the clarity of the rules. Inevitably, the current laws, where a single patent claim can establish an individual's status as an inventor,¹¹⁷ are less predictable in application than a rigid rule such as the "all claims" rule. This drawback, however, is substantially offset by the increased flexibility of the current rules and the promotion of collaboration. The present laws are easy to administer in that a joint inventorship analysis always requires a thorough examination of the patent claims.¹¹⁸ Moreover, the same joint inventorship rules are applied to each claim—an inventor must contribute to conception and the contribution must be inventive and "not insignificant in quality" when compared to the full dimension of the invention.¹¹⁹ Once established that an individual has met these requirements with respect to at least one patent claim, it is no longer necessary to determine whether the particular individual also contributed to the remaining claims. If courts continue to strictly enforce the guidelines promulgated by the Federal Circuit, inventorship determinations will become more predictable in the future.

117. See *Ethicon, Inc. v. U.S. Surgical Corp.*, 135 F.3d 1456, 1460 ("A co-inventor need not make a contribution to every claim of a patent. A contribution to one claim is enough.") (citing *SmithKline Diagnostics, Inc. v. Helena Lab. Corp.*, 859 F.2d 878, 888 (Fed. Cir. 1988)).

118. See CHISUM, *supra* note 50.

119. See discussion, *supra* Part IV.

C. *The Importance of Documentation*

Finally, joint inventorship disputes often arise, not due to a lack of clarity in the rules, but because those who have contributed to an invention fail to properly document their respective roles.¹²⁰ When the time comes to patent the invention, the contributors are left with their own opinions regarding the inputs of each individual.¹²¹ Mix in the “I want a piece of that” or “I should receive all the credit” attitudes and the result is a very difficult situation. Consequently, “[t]he most important thing a university, research institution, or company can do to plan for inventorship disputes is to document the inventive process thoroughly.”¹²² Adequate documentation by contributors, such as keeping detailed laboratory notebooks, should ease the administration of the joint inventorship laws and should increase the predictability of their application. In the end, one should keep in mind that the issue of joint inventorship is naturally complex because it involves the cooperation of many people with both common and individual interests. Not everyone will agree on what constitutes the most crucial aspect(s) of an invention, and those with much to gain are apt to pursue their inventorship statuses all the way to court. But with continued enforcement by the courts coupled with an increased awareness of the importance of documentation by collaborators, the current joint inventorship rules can offer sufficient guidance to ensure that the proper inventors are named on patents, can effectively resolve inventorship disputes that do arise, and can encourage joint efforts in the future.

VIII. CONCLUSION

In the past, joint inventorship was said to be one of the muddiest concepts in patent law.¹²³ Since then, the Federal Circuit has defined more clearly the requirements to qualify as a joint inventor on a patent. As the Fuzzy Steering Wheel Problem demonstrates, even a small contribution may potentially give rise to inventorship status. Therefore, it is crucial for those seeking patents to investigate and identify the sources of all contributions that could potentially be included in the patent claims. For this identification to occur, collaborators must

120. See Mark Fox Evens & Timothy J. Shea Jr., *Understanding the Role of Inventorship in IP Disputes*, in NAVIGATING INTELLECTUAL PROPERTY DISPUTES: LEADING LAWYERS ON PROTECTING IP ASSETS, PREVENTING AND RESOLVING DISPUTES, AND UNDERSTANDING RECENT REGULATIONS (Aspatore 2009), available at 2009 WL 3344407.

121. See *id.*

122. *Id.*

123. *Mueller Brass Co. v. Reading Indus., Inc.*, 352 F.Supp. 1357, 1372 (E.D. Pa. 1972).

adequately document the inventive process. Admittedly, the boundaries of conception in the inventive process can sometimes be difficult to define. But by limiting inventorship to conception, the law truly encourages innovation by ensuring that the proper inventors are being rewarded as opposed to rewarding the free-riding inputs of those after conception is complete. In addition to the conception limitation, the requirements that qualifying contributions be both inventive and not insignificant in quality when compared to the full dimension of the invention allow scientists, researchers, and engineers to collaborate without the fear that the floodgates to inventorship have been opened. After all, the ultimate goal of patent law is to promote innovation,¹²⁴ and by encouraging collaboration, we do just that.

124. See U.S. CONST. art. I, § 8 (“To promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries.”).